



## SEQUENCE LISTING

<110> Brunham, Robert C  
University of Manitoba

<120> DNA IMMUNIZATION AGAINST CHLAMYDIA INFECTION

<130> 1038-1094 MIS:jb

<140> 09/647,946

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<150> PCT/CA99/00292

<151> 1999-04-07

<150> 09/055,765

<151> 1998-04-07

<160> 17

<170> PatentIn Ver. 2.0

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<211> 393

<212> PRT

<213> Chlamydia trachomatis

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Ala Ser Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
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Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
35 40 45

Asp Pro Cys Thr Thr Trp Cys Asp Ala Ile Ser Met Arg Met Gly Tyr  
50 55 60

Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Lys Thr Asp Val Asn Lys  
65 70 75 80

Glu Phe Gln Met Gly Asp Lys Pro Thr Ser Thr Thr Gly Asn Ala Thr  
85 90 95

Ala Pro Thr Thr Leu Thr Ala Arg Glu Asn Pro Ala Tyr Gly Arg His  
100 105 110

Met Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Cys Met Ala Leu Asn  
115 120 125

Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Ser Ser Gly  
130 135 140

Tyr Leu Lys Gly Asn Ser Ala Ser Phe Asn Leu Val Gly Leu Phe Gly  
145 150 155 160

Asp Asn Glu Asn Gln Ser Thr Val Lys Thr Asn Ser Val Pro Asn Met  
 165 170 175  
 Ser Leu Asp Gln Ser Val Val Glu Leu Tyr Thr Asp Thr Ala Phe Ser  
 180 185 190  
 Trp Ser Val Gly Ala Arg Ala Ala Leu Trp Glu Cys Gly Cys Ala Thr  
 195 200 205  
 Leu Gly Ala Ser Phe Gln Tyr Ala Gln Ser Lys Pro Lys Val Glu Glu  
 210 215 220  
 Leu Asn Val Leu Cys Asn Ala Ala Glu Phe Thr Ile Asn Lys Pro Lys  
 225 230 235 240  
 Gly Tyr Val Gly Gln Glu Phe Pro Leu Ala Leu Ile Ala Gly Thr Asp  
 245 250 255  
 Ala Ala Thr Gly Thr Lys Asp Ala Ser Ile Asp Tyr Asn Glu Trp Gln  
 260 265 270  
 Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr Pro Tyr Ile  
 275 280 285  
 Gly Val Lys Trp Ser Arg Ala Ser Phe Asp Ala Asp Thr Ile Arg Ile  
 290 295 300  
 Ala Gln Pro Lys Ser Ala Thr Ala Ile Phe Asp Thr Thr Thr Leu Asn  
 305 310 315 320  
 Pro Thr Ile Ala Gly Ala Gly Asp Val Lys Ala Ser Ala Glu Gly Gln  
 325 330 335  
 Leu Gly Asp Thr Met Gln Ile Val Ser Leu Gln Leu Asn Lys Met Lys  
 340 345 350  
 Ser Arg Lys Ser Cys Gly Ile Ala Val Gly Thr Thr Ile Val Asp Ala  
 355 360 365  
 Asp Lys Tyr Ala Val Thr Val Glu Thr Arg Leu Ile Asp Glu Arg Ala  
 370 375 380  
 Ala His Val Asn Ala Gln Phe Arg Phe  
 385 390

<210> 2

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<212> PRT

<213> Chlamydia trachomatis

<400> 2

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Ala Ser Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
 20 25 30  
 Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
 35 40 45  
 Asp Pro Cys Thr Thr Trp Cys Asp Ala Ile Ser Met Arg Met Gly Tyr  
 50 55 60  
 Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Lys Thr Asp Val Asn Lys  
 65 70 75 80  
 Glu Phe Gln Met Gly Ala Lys Pro Thr Thr Thr Thr Gly Asn Ala Val  
 85 90 95  
 Ala Pro Ser Thr Leu Thr Ala Arg Glu Asn Pro Ala Tyr Gly Arg His  
 100 105 110  
 Met Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Cys Met Ala Leu Asn  
 115 120 125  
 Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Ser Ser Gly  
 130 135 140  
 Tyr Leu Lys Gly Asn Ser Ala Ser Phe Asn Leu Val Gly Leu Phe Gly  
 145 150 155 160  
 Asn Asn Glu Asn Gln Thr Lys Val Ser Asn Gly Ala Phe Val Pro Asn  
 165 170 175  
 Met Ser Leu Asp Gln Ser Val Val Glu Leu Tyr Thr Asp Thr Ala Phe  
 180 185 190  
 Ala Trp Ser Val Gly Ala Arg Ala Ala Leu Trp Glu Cys Gly Cys Ala  
 195 200 205  
 Thr Leu Gly Ala Ser Phe Gln Tyr Ala Gln Ser Lys Pro Lys Val Glu  
 210 215 220  
 Glu Leu Asn Val Leu Cys Asn Ala Ala Glu Phe Thr Ile Asn Lys Pro  
 225 230 235 240  
 Lys Gly Tyr Val Gly Lys Glu Leu Pro Leu Asp Leu Thr Ala Gly Thr  
 245 250 255  
 Asp Ala Ala Thr Gly Thr Lys Asp Ala Ser Ile Asp Tyr Asn Glu Trp  
 260 265 270  
 Gln Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr Pro Tyr  
 275 280 285  
 Ile Gly Val Lys Trp Ser Arg Ala Ser Phe Asp Ala Asp Thr Ile Arg  
 290 295 300  
 Ile Ala Gln Pro Lys Ser Ala Glu Thr Ile Phe Asp Val Thr Thr Leu  
 305 310 315 320  
 Asn Pro Thr Ile Ala Gly Ala Gly Asp Val Lys Thr Ser Ala Glu Gly  
 325 330 335

Gln Leu Gly Asp Thr Met Gln Ile Val Ser Leu Gln Leu Asn Lys Met  
 340 345 350

Lys Ser Arg Lys Ser Cys Gly Ile Ala Val Gly Thr Thr Ile Val Asp  
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Ala Asp Lys Tyr Ala Val Thr Val Glu Thr Arg Leu Ile Asp Glu Arg  
 370 375 380

Ala Ala His Val Asn Ala Gln Phe Arg Phe  
 385 390

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 <213> Chlamydia trachomatis

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Met Lys Lys Leu Leu Lys Ser Val Leu Val Phe Ala Ala Leu Ser Ser  
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Ala Ser Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
 20 25 30

Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
 35 40 45

Asp Pro Cys Thr Thr Trp Cys Asp Ala Ile Ser Met Arg Met Gly Tyr  
 50 55 60

Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Gln Thr Asp Val Asn Lys  
 65 70 75 80

Glu Phe Gln Met Gly Ala Lys Pro Thr Ala Thr Thr Gly Asn Ala Ala  
 85 90 95

Ala Pro Ser Thr Cys Thr Ala Arg Glu Asn Pro Ala Tyr Gly Arg His  
 100 105 110

Met Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Tyr Met Ala Leu Asn  
 115 120 125

Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Thr Ser Gly  
 130 135 140

Tyr Leu Lys Gly Asn Ser Ala Ser Phe Asn Leu Val Gly Leu Phe Gly  
 145 150 155 160

Asp Asn Glu Asn Gln Ser Thr Val Lys Lys Asp Ala Val Pro Asn Met  
 165 170 175

Ser Phe Asp Gln Ser Val Val Glu Leu Tyr Thr Asp Thr Thr Phe Ala  
 180 185 190

Trp Ser Val Gly Ala Arg Ala Ala Leu Trp Glu Cys Gly Cys Ala Thr  
 195 200 205  
 Leu Gly Ala Ser Phe Gln Tyr Ala Gln Ser Lys Pro Lys Val Glu Glu  
 210 215 220  
 Leu Asn Val Leu Cys Asn Ala Ala Glu Phe Thr Ile Asn Lys Pro Lys  
 225 230 235 240  
 Gly Tyr Val Gly Lys Glu Phe Pro Leu Asp Leu Thr Ala Gly Thr Asp  
 245 250 255  
 Ala Ala Thr Gly Thr Lys Asp Ala Ser Ile Asp Tyr Asn Glu Trp Gln  
 260 265 270  
 Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr Pro Tyr Ile  
 275 280 285  
 Gly Val Lys Trp Ser Arg Ala Ser Phe Asp Ala Asp Thr Ile Arg Ile  
 290 295 300  
 Ala Gln Pro Lys Leu Ala Thr Ala Ile Phe Asp Thr Thr Thr Leu Asn  
 305 310 315 320  
 Pro Thr Ile Ala Gly Ala Gly Glu Val Lys Ala Asn Ala Glu Gly Gln  
 325 330 335  
 Leu Gly Asp Thr Met Gln Ile Val Ser Leu Gln Leu Asn Lys Met Lys  
 340 345 350  
 Ser Arg Lys Ser Cys Gly Ile Ala Val Gly Thr Thr Ile Val Asp Ala  
 355 360 365  
 Asp Lys Tyr Ala Val Thr Val Glu Thr Arg Leu Ile Asp Glu Arg Ala  
 370 375 380  
 Ala His Val Asn Ala Gln Phe Arg Phe  
 385 390

<210> 4  
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 <212> PRT  
 <213> Chlamydia trachomatis

<400> 4

Met Lys Lys Leu Leu Lys Ser Val Leu Val Phe Ala Ala Leu Ser Ser  
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 Ala Ser Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
 20 25 30  
 Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
 35 40 45

Asp	Pro	Cys	Thr	Thr	Trp	Cys	Asp	Ala	Ile	Ser	Met	Arg	Met	Gly	Tyr		
	50					55					60						
Tyr	Gly	Asp	Phe	Val	Phe	Asp	Arg	Val	Leu	Glu	Thr	Asp	Val	Asn	Lys		
65					70					75					80		
Glu	Phe	His	Met	Gly	Ala	Lys	Pro	Thr	Ser	Thr	Thr	Gly	Asn	Ala	Thr		
				85					90					95			
Ala	Pro	Thr	Thr	Leu	Thr	Ala	Arg	Glu	Asn	Pro	Ala	Tyr	Gly	Arg	His		
			100					105					110				
Met	Gln	Asp	Ala	Glu	Met	Phe	Thr	Asn	Ala	Ala	Cys	Met	Ala	Leu	Asn		
		115					120					125					
Ile	Trp	Asp	Arg	Phe	Asp	Val	Phe	Cys	Thr	Leu	Gly	Ala	Thr	Ser	Gly		
130						135					140						
Tyr	Leu	Lys	Gly	Asn	Ser	Ala	Ser	Phe	Asn	Leu	Val	Gly	Leu	Phe	Gly		
145					150					155					160		
Asp	Asn	Glu	Asn	Gln	Lys	Thr	Val	Lys	Ala	Glu	Ser	Val	Pro	Asn	Met		
				165					170					175			
Ser	Phe	Asp	Gln	Ser	Val	Val	Glu	Leu	Tyr	Thr	Asp	Thr	Thr	Phe	Ala		
			180					185						190			
Trp	Ser	Val	Gly	Ala	Arg	Ala	Ala	Leu	Trp	Glu	Cys	Gly	Cys	Ala	Thr		
		195					200					205					
Leu	Gly	Ala	Ser	Phe	Gln	Tyr	Ala	Gln	Ser	Lys	Pro	Lys	Val	Glu	Glu		
	210					215					220						
Leu	Asn	Val	Leu	Cys	Asn	Ala	Ala	Glu	Phe	Thr	Ile	Asn	Lys	Pro	Lys		
225					230					235					240		
Gly	Tyr	Val	Gly	Lys	Glu	Phe	Pro	Leu	Asp	Leu	Thr	Ala	Gly	Thr	Asp		
				245					250					255			
Ala	Ala	Thr	Gly	Thr	Lys	Asp	Ala	Ser	Ile	Asp	Tyr	Asn	Glu	Trp	Gln		
			260					265					270				
Ala	Ser	Leu	Ala	Leu	Ser	Tyr	Arg	Leu	Asn	Met	Phe	Thr	Pro	Tyr	Ile		
		275					280					285					
Gly	Val	Lys	Trp	Ser	Arg	Ala	Ser	Phe	Asp	Ala	Asp	Thr	Ile	Arg	Ile		
	290					295					300						
Ala	Gln	Pro	Lys	Ser	Ala	Thr	Ala	Ile	Phe	Asp	Thr	Thr	Thr	Leu	Asn		
305					310					315					320		
Pro	Thr	Ile	Ala	Gly	Ala	Gly	Asp	Val	Lys	Thr	Gly	Thr	Glu	Gly	Gln		
			325						330					335			
Leu	Gly	Asp	Thr	Met	Gln	Ile	Val	Ser	Leu	Gln	Leu	Asn	Lys	Met	Lys		
			340					345					350				
Ser	Arg	Lys	Ser	Cys	Gly	Ile	Ala	Val	Gly	Thr	Thr	Ile	Val	Asp	Ala		
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Asp Lys Tyr Ala Val Thr Val Glu Thr Arg Leu Ile Asp Glu Arg Ala  
 370 375 380

Ala His Val Asn Ala Gln Phe Arg Phe  
 385 390

<210> 5

<211> 394

<212> PRT

<213> Chlamydia trachomatis

<400> 5

Met Lys Lys Leu Leu Lys Ser Val Leu Val Phe Ala Ala Leu Ser Ser  
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Ala Ser Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
 20 25 30

Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
 35 40 45

Asp Pro Cys Thr Thr Trp Cys Asp Ala Ile Ser Met Arg Met Gly Tyr  
 50 55 60

Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Gln Thr Asp Val Asn Lys  
 65 70 75 80

Glu Phe Gln Met Gly Ala Lys Pro Thr Thr Ala Thr Gly Asn Ala Ala  
 85 90 95

Ala Pro Ser Thr Cys Thr Ala Arg Glu Asn Pro Ala Tyr Gly Arg His  
 100 105 110

Met Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Tyr Met Ala Leu Asn  
 115 120 125

Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Thr Ser Gly  
 130 135 140

Tyr Leu Lys Gly Asn Ser Ala Ser Phe Asn Leu Val Gly Leu Phe Gly  
 145 150 155 160

Asp Asn Glu Asn His Ala Thr Val Ser Asp Ser Lys Leu Val Pro Asn  
 165 170 175

Met Ser Leu Asp Gln Ser Val Val Glu Leu Tyr Thr Asp Thr Thr Phe  
 180 185 190

Ala Trp Ser Ala Gly Ala Arg Ala Ala Leu Trp Glu Cys Gly Cys Ala  
 195 200 205

Thr Leu Gly Ala Ser Phe Gln Tyr Ala Gln Ser Lys Pro Lys Val Glu  
 210 215 220

Glu Leu Asn Val Leu Cys Asn Ala Ala Glu Phe Thr Ile Asn Lys Pro  
 225 230 235 240  
 Lys Gly Tyr Val Gly Gln Glu Phe Pro Leu Asp Leu Lys Ala Gly Thr  
 245 250 255  
 Asp Gly Val Thr Gly Thr Lys Asp Ala Ser Ile Asp Tyr Asn Glu Trp  
 260 265 270  
 Gln Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr Pro Tyr  
 275 280 285  
 Ile Gly Val Lys Trp Ser Arg Ala Ser Phe Asp Ala Asp Thr Ile Arg  
 290 295 300  
 Ile Ala Gln Pro Lys Ser Ala Thr Thr Val Phe Asp Val Thr Thr Leu  
 305 310 315 320  
 Asn Pro Thr Ile Ala Gly Ala Gly Asp Val Lys Ala Ser Ala Glu Gly  
 325 330 335  
 Gln Leu Gly Asp Thr Met Gln Ile Val Ser Leu Gln Leu Asn Lys Met  
 340 345 350  
 Lys Ser Arg Lys Ser Cys Gly Ile Ala Val Gly Thr Thr Ile Val Asp  
 355 360 365  
 Ala Asp Lys Tyr Ala Val Thr Val Glu Thr Arg Leu Ile Asp Glu Arg  
 370 375 380  
 Ala Ala His Val Asn Ala Gln Phe Arg Phe  
 385 390

<210> 6  
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 <212> PRT  
 <213> Chlamydia trachomatis

<400> 6

Met Lys Lys Leu Leu Lys Ser Val Leu Val Phe Ala Ala Leu Ser Ser  
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 Ala Ser Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
 20 25 30  
 Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
 35 40 45  
 Asp Pro Cys Thr Thr Trp Cys Asp Ala Ile Ser Met Arg Met Gly Tyr  
 50 55 60  
 Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Lys Thr Asp Val Asn Lys  
 65 70 75 80



Glu Phe Glu Met Gly Glu Ala Leu Ala Gly Ala Ser Gly Asn Thr Thr 85 90 95  
 Ser Thr Leu Ser Lys Leu Val Glu Arg Thr Asn Pro Ala Tyr Gly Lys 100 105 110  
 His Met Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Cys Met Thr Leu 115 120 125  
 Asn Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Thr Ser 130 135 140  
 Gly Tyr Leu Lys Gly Asn Ser Ala Ser Phe Asn Leu Val Gly Leu Phe 145 150 155 160  
 Gly Asp Gly Val Asn Ala Thr Lys Pro Ala Ala Asp Ser Ile Pro Asn 165 170 175  
 Val Gln Leu Asn Gln Ser Val Val Glu Leu Tyr Thr Asp Thr Thr Phe 180 185 190  
 Ala Trp Ser Val Gly Ala Arg Ala Ala Leu Trp Glu Cys Gly Cys Ala 195 200 205  
 Thr Leu Gly Ala Ser Phe Gln Tyr Ala Gln Ser Lys Pro Lys Ile Glu 210 215 220  
 Glu Leu Asn Val Leu Cys Asn Ala Ala Glu Phe Thr Ile Asn Lys Pro 225 230 235 240  
 Lys Gly Tyr Val Gly Lys Glu Phe Pro Leu Asp Leu Thr Ala Gly Thr 245 250 255  
 Asp Ala Ala Thr Gly Thr Lys Asp Ala Ser Ile Asp Tyr Asn Glu Trp 260 265 270  
 Gln Ala Ser Leu Ser Leu Ser Tyr Arg Leu Asn Met Phe Thr Pro Tyr 275 280 285  
 Ile Gly Val Lys Trp Ser Arg Ala Ser Phe Asp Ser Asp Thr Ile Arg 290 295 300  
 Ile Ala Gln Pro Arg Leu Val Thr Pro Val Val Asp Ile Thr Thr Leu 305 310 315 320  
 Asn Pro Thr Ile Ala Gly Cys Gly Ser Val Ala Gly Ala Asn Thr Glu 325 330 335  
 Gly Gln Ile Ser Asp Thr Met Gln Ile Val Ser Leu Gln Leu Asn Lys 340 345 350  
 Met Lys Ser Arg Lys Ser Cys Gly Ile Ala Val Gly Thr Thr Ile Val 355 360 365  
 Asp Ala Asp Lys Tyr Ala Val Thr Val Glu Thr Arg Leu Ile Asp Glu 370 375 380  
 Arg Ala Ala His Val Asn Ala Gln Phe Arg Phe 385 390 395

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 <211> 397  
 <212> PRT  
 <213> Chlamydia trachomatis

<400> 7

Met Lys Lys Leu Leu Lys Ser Val Leu Val Phe Ala Ala Leu Ser Ser  
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Ala Ser Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
 20 25 30

Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
 35 40 45

Asp Pro Cys Thr Thr Trp Cys Asp Ala Ile Ser Met Arg Val Gly Tyr  
 50 55 60

Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Lys Thr Asp Val Asn Lys  
 65 70 75 80

Glu Phe Gln Met Gly Ala Glu Pro Thr Thr Ser Asp Thr Ala Gly Leu  
 85 90 95

Ser Asn Asp Pro Thr Thr Asn Val Ala Arg Pro Asn Pro Ala Tyr Gly  
 100 105 110

Lys His Met Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Tyr Met Ala  
 115 120 125

Leu Asn Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Thr  
 130 135 140

Thr Gly Tyr Leu Lys Gly Asn Ser Ala Ser Phe Asn Leu Val Gly Leu  
 145 150 155 160

Phe Gly Thr Lys Thr Gln Ser Thr Asn Phe Asn Thr Ala Lys Leu Val  
 165 170 175

Pro Asn Thr Ala Leu Asn Gln Ala Val Val Glu Leu Tyr Thr Asp Thr  
 180 185 190

Thr Phe Ala Trp Ser Val Gly Ala Arg Ala Ala Leu Trp Glu Cys Gly  
 195 200 205

Cys Ala Thr Leu Gly Ala Ser Phe Gln Tyr Ala Gln Ser Lys Pro Lys  
 210 215 220

Val Glu Glu Leu Asn Val Leu Cys Asp Ala Ser Glu Phe Thr Ile Asn  
 225 230 235 240

Lys Pro Lys Gly Tyr Val Gly Ala Glu Phe Pro Leu Asp Ile Thr Ala  
 245 250 255

Gly Thr Glu Ala Ala Thr Gly Thr Lys Asp Ala Ser Ile Asp Tyr Asn  
260 265 270

Glu Trp Gln Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr  
275 280 285

Pro Tyr Ile Gly Val Lys Trp Ser Arg Val Ser Phe Asp Ala Asp Thr  
290 295 300

Ile Arg Ile Ala Gln Pro Lys Leu Ala Glu Ala Val Leu Asp Val Thr  
305 310 315 320

Thr Leu Asn Pro Thr Ile Ala Gly Lys Gly Ser Val Val Ala Ser Gly  
325 330 335

Ser Glu Asn Glu Leu Ala Asp Thr Met Gln Ile Val Ser Leu Gln Leu  
340 345 350

Asn Lys Met Lys Ser Arg Lys Ser Cys Gly Ile Ala Val Gly Thr Thr  
355 360 365

Ile Val Asp Ala Asp Lys Tyr Ala Val Thr Val Glu Thr Arg Leu Ile  
370 375 380

Asp Glu Arg Ala Ala His Val Asn Ala Gln Phe Arg Phe  
385 390 395

<210> 8

<211> 396

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<213> Chlamydia trachomatis

<400> 8

Met Lys Lys Leu Leu Lys Ser Val Leu Val Phe Ala Ala Leu Ser Ser  
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Ala Ser Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
20 25 30

Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
35 40 45

Asp Pro Cys Thr Thr Trp Cys Asp Ala Ile Ser Met Arg Met Gly Tyr  
50 55 60

Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Lys Thr Asp Val Asn Lys  
65 70 75 80

Glu Phe Gln Met Gly Ala Ala Pro Thr Thr Ser Asp Val Ala Gly Leu  
85 90 95

Glu Lys Asp Pro Val Ala Asn Val Ala Arg Pro Asn Pro Ala Tyr Gly  
100 105 110

Lys His Met Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Tyr Met Ala  
 115 120 125  
 Leu Asn Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Thr  
 130 135 140  
 Thr Gly Tyr Leu Lys Gly Asn Ser Ala Ser Phe Asn Leu Val Gly Leu  
 145 150 155 160  
 Phe Gly Thr Lys Thr Gln Ser Ser Gly Phe Asp Thr Ala Asn Ile Val  
 165 170 175  
 Pro Asn Thr Ala Leu Asn Gln Ala Val Val Glu Leu Tyr Thr Asp Thr  
 180 185 190  
 Thr Phe Ala Trp Ser Val Gly Ala Arg Ala Ala Leu Trp Glu Cys Gly  
 195 200 205  
 Cys Ala Thr Leu Gly Ala Ser Phe Gln Tyr Ala Gln Ser Lys Pro Lys  
 210 215 220  
 Val Glu Glu Leu Asn Val Leu Cys Asn Ala Ser Glu Phe Thr Ile Asn  
 225 230 235 240  
 Lys Pro Lys Gly Tyr Val Gly Ala Glu Phe Pro Leu Asp Ile Thr Ala  
 245 250 255  
 Gly Thr Glu Ala Ala Thr Gly Thr Lys Asp Ala Ser Ile Asp Tyr Asn  
 260 265 270  
 Glu Trp Gln Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr  
 275 280 285  
 Pro Tyr Ile Gly Val Lys Trp Ser Arg Val Ser Phe Asp Ala Asp Thr  
 290 295 300  
 Ile Arg Ile Ala Gln Pro Lys Leu Ala Lys Pro Val Leu Asp Thr Thr  
 305 310 315 320  
 Thr Leu Asn Pro Thr Ile Ala Gly Lys Gly Thr Val Val Ser Ser Ala  
 325 330 335  
 Glu Asn Glu Leu Ala Asp Thr Met Gln Ile Val Ser Leu Gln Leu Asn  
 340 345 350  
 Lys Met Lys Ser Arg Lys Ser Cys Gly Ile Ala Val Gly Thr Thr Val  
 355 360 365  
 Val Asp Ala Asp Lys Tyr Ala Val Thr Ile Glu Thr Arg Leu Ile Asp  
 370 375 380  
 Glu Arg Ala Ala His Val Asn Ala Gln Phe Arg Phe  
 385 390 395

<210> 9  
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 <213> Chlamydia trachomatis

<400> 9

Met	Lys	Lys	Leu	Leu	Lys	Ser	Val	Leu	Val	Phe	Ala	Ala	Leu	Ser	Ser	1	5	10	15
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Leu	Met	Ile	Asp	Gly	Ile	Leu	Trp	Glu	Gly	Phe	Gly	Gly	Asp	Pro	Cys	35	40	45	
Asp	Pro	Cys	Thr	Thr	Trp	Cys	Asp	Ala	Ile	Ser	Met	Arg	Val	Gly	Tyr	50	55	60	
Tyr	Gly	Asp	Phe	Val	Phe	Asp	Arg	Val	Leu	Lys	Thr	Asp	Val	Asn	Lys	65	70	75	80
Glu	Phe	Gln	Met	Gly	Ala	Ala	Pro	Thr	Thr	Ser	Asp	Val	Ala	Gly	Leu	85	90	95	
Gln	Asn	Asp	Pro	Thr	Thr	Asn	Asn	Ala	Arg	Pro	Asn	Pro	Ala	Tyr	Gly	100	105	110	
Lys	His	Met	Gln	Asp	Ala	Glu	Met	Phe	Thr	Asn	Ala	Ala	Tyr	Met	Ala	115	120	125	
Leu	Asn	Ile	Trp	Asp	Arg	Phe	Asp	Val	Phe	Cys	Thr	Leu	Gly	Ala	Thr	130	135	140	
Thr	Gly	Tyr	Leu	Lys	Gly	Asn	Ser	Ala	Ser	Phe	Asn	Leu	Val	Gly	Leu	145	150	155	160
Phe	Gly	Thr	Lys	Thr	Gln	Ser	Ser	Ser	Phe	Asn	Thr	Ala	Lys	Leu	Ile	165	170	175	
Pro	Thr	Ala	Ser	Leu	Asn	Glu	Ala	Val	Val	Glu	Leu	Tyr	Ile	Asn	Thr	180	185	190	
Thr	Phe	Ala	Trp	Ser	Val	Gly	Ala	Arg	Ala	Ala	Leu	Trp	Glu	Cys	Gly	195	200	205	
Cys	Ala	Thr	Leu	Gly	Ala	Ser	Phe	Gln	Tyr	Ala	Gln	Ser	Lys	Pro	Lys	210	215	220	
Val	Glu	Glu	Leu	Asn	Val	Leu	Cys	Asn	Ala	Ser	Glu	Phe	Thr	Ile	Asn	225	230	235	240
Lys	Pro	Lys	Gly	Tyr	Val	Gly	Ala	Glu	Phe	Pro	Leu	Asn	Ile	Thr	Ala	245	250	255	
Gly	Thr	Glu	Ala	Ala	Thr	Gly	Thr	Lys	Asp	Ala	Ser	Ile	Asp	Tyr	Asn	260	265	270	

Glu Trp Gln Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr  
 275 280 285  
 Pro Tyr Ile Gly Val Lys Trp Ser Arg Val Ser Phe Asp Ala Asp Thr  
 290 295 300  
 Ile Arg Ile Ala Gln Pro Lys Leu Ala Glu Ala Ile Leu Asp Val Thr  
 305 310 315 320  
 Thr Leu Asn Pro Thr Ile Ala Gly Lys Gly Ser Val Val Ser Ala Gly  
 325 330 335  
 Thr Asp Asn Glu Leu Ala Asp Thr Met Gln Ile Val Ser Leu Gln Leu  
 340 345 350  
 Asn Lys Met Lys Ser Arg Lys Ser Cys Gly Ile Ala Val Gly Thr Thr  
 355 360 365  
 Ile Val Asp Ala Asp Lys Tyr Ala Val Thr Val Glu Ala Arg Leu Ile  
 370 375 380  
 Asp Glu Arg Ala Ala His Val Asn Ala Gln Phe Arg Phe  
 385 390 395

<210> 10

<211> 397

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<213> Chlamydia trachomatis

<400> 10

Met Lys Lys Leu Leu Lys Ser Val Leu Val Phe Ala Ala Leu Ser Ser  
 1 5 10 15  
 Ala Ser Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
 20 25 30  
 Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
 35 40 45  
 Asp Pro Cys Ala Thr Trp Cys Asp Ala Ile Ser Met Arg Val Gly Tyr  
 50 55 60  
 Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Lys Thr Asp Val Asn Lys  
 65 70 75 80  
 Glu Phe Gln Met Gly Ala Ala Pro Thr Thr Asn Asp Ala Ala Asp Leu  
 85 90 95  
 Gln Asn Asp Pro Lys Thr Asn Val Ala Arg Pro Asn Pro Ala Tyr Gly  
 100 105 110  
 Lys His Met Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Tyr Met Ala  
 115 120 125

Leu Asn Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Thr  
 130 135 140  
 Thr Gly Tyr Leu Lys Gly Asn Ser Ala Ser Phe Asn Leu Val Gly Leu  
 145 150 155 160  
 Phe Gly Thr Lys Thr Lys Ser Ser Asp Phe Asn Thr Ala Lys Leu Val  
 165 170 175  
 Pro Asn Ile Ala Leu Asn Arg Ala Val Val Glu Leu Tyr Thr Asp Thr  
 180 185 190  
 Thr Phe Ala Trp Ser Val Gly Ala Arg Ala Ala Leu Trp Glu Cys Gly  
 195 200 205  
 Cys Ala Thr Leu Gly Ala Ser Phe Gln Tyr Ala Gln Ser Lys Pro Lys  
 210 215 220  
 Val Glu Glu Leu Asn Val Leu Cys Asn Ala Ser Glu Phe Thr Ile Asn  
 225 230 235 240  
 Lys Pro Lys Gly Tyr Val Gly Ala Glu Phe Pro Leu Asp Ile Thr Ala  
 245 250 255  
 Gly Thr Glu Ala Ala Thr Gly Thr Lys Asp Ala Ser Ile Asp Tyr Asn  
 260 265 270  
 Glu Trp Gln Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr  
 275 280 285  
 Pro Tyr Ile Gly Val Lys Trp Ser Arg Val Ser Phe Asp Ala Asp Thr  
 290 295 300  
 Ile Arg Ile Ala Gln Pro Lys Leu Ala Glu Ala Ile Leu Asp Val Thr  
 305 310 315 320  
 Thr Leu Asn Pro Thr Ile Ala Gly Lys Gly Thr Val Val Ala Ser Gly  
 325 330 335  
 Ser Asp Asn Asp Leu Ala Asp Thr Met Gln Ile Val Ser Leu Gln Leu  
 340 345 350  
 Asn Lys Met Lys Ser Arg Lys Ser Cys Gly Ile Ala Val Gly Thr Thr  
 355 360 365  
 Ile Val Asp Ala Asp Lys Tyr Ala Val Thr Val Glu Thr Arg Leu Ile  
 370 375 380  
 Asp Glu Arg Ala Ala His Val Asn Ala Gln Phe Arg Phe  
 385 390 395

&lt;210&gt; 11

&lt;211&gt; 387

&lt;212&gt; PRT

&lt;213&gt; Chlamydia trachomatis

&lt;400&gt; 11

Met Lys Lys Leu Leu Lys Ser Val Leu Ala Phe Ala Val Leu Gly Ser  
 1 5 10 15  
 Ala Ser Ser Leu His Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
 20 25 30  
 Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
 35 40 45  
 Asp Pro Cys Thr Thr Trp Cys Asp Ala Ile Ser Leu Arg Leu Gly Tyr  
 50 55 60  
 Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Lys Thr Asp Val Asn Lys  
 65 70 75 80  
 Gln Phe Glu Met Gly Ala Ala Pro Thr Gly Asp Ala Asp Leu Thr Thr  
 85 90 95  
 Ala Pro Thr Pro Ala Ser Arg Glu Asn Pro Ala Tyr Gly Lys His Met  
 100 105 110  
 Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Tyr Met Ala Leu Asn Ile  
 115 120 125  
 Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Thr Ser Gly Tyr  
 130 135 140  
 Leu Lys Gly Asn Ser Ala Ala Phe Asn Leu Val Gly Leu Phe Gly Arg  
 145 150 155 160  
 Asp Glu Thr Ala Val Ala Ala Asp Asp Ile Pro Asn Val Ser Leu Ser  
 165 170 175  
 Gln Ala Val Val Glu Leu Tyr Thr Asp Thr Ala Phe Ala Trp Ser Val  
 180 185 190  
 Gly Ala Arg Ala Ala Leu Trp Glu Cys Gly Cys Ala Thr Leu Gly Ala  
 195 200 205  
 Ser Phe Gln Tyr Ala Gln Ser Lys Pro Lys Val Glu Glu Leu Asn Val  
 210 215 220  
 Leu Cys Asn Ala Ala Glu Phe Thr Ile Asn Lys Pro Lys Gly Tyr Val  
 225 230 235 240  
 Gly Gln Glu Phe Pro Leu Asn Ile Lys Ala Gly Thr Val Ser Ala Thr  
 245 250 255  
 Asp Thr Lys Asp Ala Ser Ile Asp Tyr Asn Glu Trp Gln Ala Ser Leu  
 260 265 270  
 Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr Pro Tyr Ile Gly Val Lys  
 275 280 285  
 Trp Ser Arg Ala Ser Phe Asp Ala Asp Thr Ile Arg Ile Ala Gln Pro  
 290 295 300



Lys Leu Glu Thr Ser Ile Leu Lys Met Thr Thr Trp Asn Pro Thr Ile  
 305 310 315 320  
 Ser Gly Ser Gly Ile Asp Val Asp Thr Lys Ile Thr Asp Thr Leu Gln  
 325 330 335  
 Ile Val Ser Leu Gln Leu Asn Lys Met Lys Ser Arg Lys Ser Cys Gly  
 340 345 350  
 Leu Ala Ile Gly Thr Thr Ile Val Asp Ala Asp Lys Tyr Ala Val Thr  
 355 360 365  
 Val Glu Thr Arg Leu Ile Asp Glu Arg Ala Ala His Val Asn Ala Gln  
 370 375 380  
 Phe Arg Phe  
 385

<210> 12  
 <211> 404  
 <212> PRT  
 <213> Chlamydia trachomatis

<400> 12

Met Lys Lys Leu Leu Lys Ser Val Leu Ala Phe Ala Val Leu Gly Ser  
 1 5 10 15  
 Ala Ser Ser Leu His Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
 20 25 30  
 Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys  
 35 40 45  
 Asp Pro Cys Thr Thr Trp Cys Asp Ala Ile Ser Leu Arg Leu Gly Tyr  
 50 55 60  
 Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Lys Thr Asp Val Asn Lys  
 65 70 75 80  
 Gln Phe Glu Met Gly Pro Val Pro Thr Thr Thr Asp Thr Asp Ala Ala  
 85 90 95  
 Ala Asp Ile Thr Thr Ser Thr Pro Arg Glu Asn Pro Ala Tyr Gly Lys  
 100 105 110  
 His Met Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Tyr Met Ala Leu  
 115 120 125  
 Asn Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Thr Ser  
 130 135 140  
 Gly Tyr Leu Lys Gly Asn Ser Ala Ser Phe Asn Leu Val Gly Leu Phe  
 145 150 155 160

Gly Asp Gly Val Ala Asn Ala Ala Asn Ala Ile Ala Thr Val Ala Ala  
 165 170 175  
 Asp Ser Leu Pro Asn Val Ser Leu Ser Gln Ala Val Val Glu Leu Tyr  
 180 185 190  
 Thr Asp Thr Ala Phe Ala Trp Ser Val Gly Ala Arg Ala Ala Leu Trp  
 195 200 205  
 Glu Cys Gly Cys Ala Thr Leu Gly Ala Ser Phe Gln Tyr Ala Gln Ser  
 210 215 220  
 Lys Pro Lys Val Glu Glu Leu Asn Val Leu Cys Asn Ala Ala Gln Phe  
 225 230 235 240  
 Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu Phe Pro Leu Ala  
 245 250 255  
 Leu Thr Ala Gly Thr Asp Ser Ala Thr Asp Thr Lys Asp Ala Ser Ile  
 260 265 270  
 Asp Tyr Asn Glu Trp Gln Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn  
 275 280 285  
 Met Phe Thr Pro Tyr Ile Gly Val Lys Trp Ser Arg Ala Ser Phe Asp  
 290 295 300  
 Ala Asp Thr Ile Arg Ile Ala Gln Pro Lys Leu Ala Glu Ala Ile Leu  
 305 310 315 320  
 Asp Val Thr Thr Trp Asn Pro Thr Ile Ala Gly Ala Gly Thr Ile Ala  
 325 330 335  
 Asp Gly Thr Gly Ala Ala Ala Thr Ala Asn Gly Leu Ala Asp Thr Leu  
 340 345 350  
 Gln Ile Val Ser Leu Gln Leu Asn Lys Met Lys Ser Arg Lys Ser Cys  
 355 360 365  
 Gly Leu Ala Ile Gly Thr Thr Ile Val Asp Ala Asp Lys Tyr Ala Val  
 370 375 380  
 Thr Val Glu Thr Arg Leu Ile Asp Glu Arg Ala Ala His Val Asn Ala  
 385 390 395 400  
 Gln Phe Arg Phe

&lt;210&gt; 13

&lt;211&gt; 389

&lt;212&gt; PRT

&lt;213&gt; Chlamydia trachomatis

&lt;400&gt; 13

Met Lys Lys Leu Leu Lys Ser Ala Leu Leu Phe Ala Thr Thr Gly Ser  
 1 5 10 15

Ala	Leu	Ser	Leu	Gln	Ala	Leu	Pro	Val	Gly	Asn	Pro	Ala	Glu	Pro	Ser	
			20						25				30			
Leu	Leu	Ile	Asp	Gly	Thr	Met	Trp	Glu	Gly	Ala	Ser	Gly	Asp	Pro	Cys	
		35					40					45				
Asp	Pro	Cys	Ser	Thr	Trp	Cys	Asp	Ala	Ile	Ser	Ile	Arg	Ala	Gly	Tyr	
	50					55					60					
Tyr	Gly	Asp	Tyr	Val	Phe	Asp	Arg	Ile	Leu	Lys	Val	Asp	Val	Asn	Lys	
65					70					75					80	
Thr	Ile	Ser	Met	Gly	Thr	Ala	Pro	Thr	Gly	Asn	Ala	Ala	Ala	Asp	Phe	
				85					90					95		
Lys	Thr	Val	Ala	Asp	Arg	Asn	Asn	Ile	Ala	Tyr	Gly	Lys	His	Met	Gln	
		100						105					110			
Asp	Ala	Glu	Trp	Ser	Thr	Asn	Ala	Ala	Phe	Leu	Ala	Leu	Asn	Ile	Trp	
		115					120					125				
Asp	Arg	Phe	Asp	Val	Phe	Cys	Thr	Leu	Gly	Ala	Ser	Asn	Gly	Tyr	Leu	
	130					135					140					
Lys	Ala	Asn	Ala	Ala	Ala	Phe	Asn	Leu	Val	Gly	Leu	Leu	Gly	Val	Thr	
145					150					155					160	
Gly	Thr	Asp	Leu	Gln	Gly	Gln	Tyr	Pro	Asn	Val	Ala	Ile	Ser	Gln	Gly	
			165						170					175		
Leu	Val	Glu	Leu	Tyr	Thr	Asp	Thr	Thr	Phe	Ser	Trp	Ser	Val	Gly	Ala	
		180						185					190			
Arg	Gly	Ala	Leu	Trp	Glu	Cys	Gly	Cys	Ala	Thr	Leu	Gly	Ala	Glu	Phe	
		195					200					205				
Gln	Tyr	Ala	Gln	Ser	Asn	Pro	Lys	Ile	Glu	Met	Leu	Asn	Val	Ile	Ser	
	210					215					220					
Ser	Pro	Thr	Gln	Phe	Val	Ile	His	Lys	Pro	Arg	Gly	Tyr	Lys	Gly	Thr	
225					230					235					240	
Ala	Ala	Asn	Phe	Pro	Leu	Pro	Leu	Thr	Ala	Gly	Thr	Glu	Ser	Ala	Thr	
			245						250					255		
Asp	Thr	Lys	Ser	Ala	Thr	Ile	Lys	Tyr	Asn	Glu	Trp	Gln	Ile	Gly	Leu	
		260						265					270			
Ala	Leu	Ser	Tyr	Arg	Leu	Asn	Met	Leu	Val	Pro	Tyr	Ile	Gly	Val	Asn	
		275					280					285				
Trp	Ser	Arg	Ala	Thr	Phe	Asp	Ala	Asp	Ser	Ile	Arg	Ile	Ala	Gln	Pro	
	290					295					300					
Lys	Leu	Pro	Thr	Ala	Ile	Leu	Asn	Leu	Thr	Thr	Trp	Asn	Pro	Thr	Leu	
305					310					315					320	

Leu Gly Glu Ala Thr Thr Ile Asn Thr Gly Ala Lys Tyr Ala Asp Gln  
 325 330 335

Leu Gln Ile Ala Ser Leu Gln Ile Asn Lys Met Lys Ser Arg Lys Ala  
 340 345 350

Cys Gly Ile Ala Val Gly Ala Thr Leu Ile Asp Ala Asp Lys Trp Ser  
 355 360 365

Ile Thr Gly Glu Ala Arg Leu Ile Asn Glu Arg Ala Ala His Val Asn  
 370 375 380

Ala Gln Phe Arg Phe  
 385

<210> 14

<211> 402

<212> PRT

<213> Chlamydia trachomatis

<400> 14

Met Lys Lys Leu Leu Lys Ser Ala Leu Leu Phe Ala Ala Thr Gly Ser  
 1 5 10 15

Ala Leu Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser  
 20 25 30

Leu Leu Ile Asp Gly Thr Met Trp Glu Gly Ala Ser Gly Asp Pro Cys  
 35 40 45

Asp Pro Cys Ala Thr Trp Cys Asp Ala Ile Ser Ile Arg Ala Gly Tyr  
 50 55 60

Tyr Gly Asp Tyr Val Phe Asp Arg Val Leu Lys Val Asp Val Asn Lys  
 65 70 75 80

Thr Phe Ser Gly Met Ala Ala Thr Pro Thr Gln Ala Thr Gly Asn Ala  
 85 90 95

Ser Asn Thr Asn Gln Pro Glu Ala Asn Gly Arg Pro Asn Ile Ala Tyr  
 100 105 110

Gly Arg His Met Glu Asp Ala Glu Trp Phe Ser Asn Ala Ala Phe Leu  
 115 120 125

Ala Leu Asn Ile Trp Asp Arg Phe Asp Ile Phe Cys Thr Leu Gly Ala  
 130 135 140

Ser Asn Gly Tyr Phe Lys Ala Ser Ser Ala Ala Phe Asn Leu Val Gly  
 145 150 155 160

Leu Ile Gly Phe Ser Ala Ala Ser Ser Ile Ser Thr Asp Leu Pro Thr  
 165 170 175

Gln Leu Pro Asn Val Gly Ile Thr Gln Gly Val Val Glu Phe Tyr Thr  
 180 185 190  
 Asp Thr Ser Phe Ser Trp Ser Val Gly Ala Arg Gly Ala Leu Trp Glu  
 195 200 205  
 Cys Gly Cys Ala Thr Leu Gly Ala Glu Phe Gln Tyr Ala Gln Ser Asn  
 210 215 220  
 Pro Lys Ile Glu Met Leu Asn Val Thr Ser Ser Pro Ala Gln Phe Val  
 225 230 235 240  
 Ile His Lys Pro Arg Gly Tyr Lys Gly Ala Ser Ser Asn Phe Pro Leu  
 245 250 255  
 Pro Ile Thr Ala Gly Thr Thr Glu Ala Thr Asp Thr Lys Ser Ala Thr  
 260 265 270  
 Ile Lys Tyr Asn Glu Trp Gln Val Gly Leu Ala Leu Ser Tyr Arg Leu  
 275 280 285  
 Asn Met Leu Val Pro Tyr Ile Gly Val Asn Trp Ser Arg Ala Thr Phe  
 290 295 300  
 Asp Ala Asp Thr Ile Arg Ile Ala Gln Pro Lys Leu Lys Ser Glu Ile  
 305 310 315 320  
 Leu Asn Ile Thr Thr Trp Asn Pro Ser Leu Ile Gly Ser Thr Thr Ala  
 325 330 335  
 Leu Pro Asn Asn Ser Gly Lys Asp Val Leu Ser Asp Val Leu Gln Ile  
 340 345 350  
 Ala Ser Ile Gln Ile Asn Lys Met Lys Ser Arg Lys Ala Cys Gly Val  
 355 360 365  
 Ala Val Gly Ala Thr Leu Ile Asp Ala Asp Lys Trp Ser Ile Thr Gly  
 370 375 380  
 Glu Ala Arg Leu Ile Asn Glu Arg Ala Ala His Met Asn Ala Gln Phe  
 385 390 395 400  
 Arg Phe

&lt;210&gt; 15

&lt;211&gt; 389

&lt;212&gt; PRT

&lt;213&gt; Chlamydia trachomatis

&lt;400&gt; 15

Met Lys Lys Leu Leu Lys Ser Ala Leu Leu Ser Ala Ala Phe Ala Gly  
 1 5 10 15  
 Ser Val Gly Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ser Asp Pro  
 20 25 30

Ser Leu Leu Ile Asp Gly Thr Ile Trp Glu Gly Ala Ala Gly Asp Pro  
 35 40 45  
 Cys Asp Pro Cys Ala Thr Trp Cys Asp Ala Ile Ser Leu Arg Ala Gly  
 50 55 60  
 Phe Tyr Gly Asp Tyr Val Phe Asp Arg Ile Leu Lys Val Asp Ala Pro  
 65 70 75 80  
 Lys Thr Phe Ser Met Gly Ala Lys Pro Thr Gly Ser Ala Ala Ala Asn  
 85 90 95  
 Tyr Thr Thr Ala Val Asp Arg Pro Asn Pro Ala Tyr Asn Lys His Leu  
 100 105 110  
 His Asp Ala Glu Trp Phe Thr Asn Ala Gly Phe Ile Ala Leu Asn Ile  
 115 120 125  
 Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Ser Asn Gly Tyr  
 130 135 140  
 Ile Arg Gly Asn Ser Thr Ala Phe Asn Leu Val Gly Leu Phe Gly Val  
 145 150 155 160  
 Lys Gly Thr Thr Val Asn Ala Asn Glu Leu Pro Asn Val Ser Leu Ser  
 165 170 175  
 Asn Gly Val Val Glu Leu Tyr Thr Asp Thr Ser Phe Ser Trp Ser Val  
 180 185 190  
 Gly Ala Arg Gly Ala Leu Trp Glu Cys Gly Cys Ala Thr Leu Gly Ala  
 195 200 205  
 Glu Phe Gln Tyr Ala Gln Ser Lys Pro Lys Val Glu Glu Leu Asn Val  
 210 215 220  
 Ile Cys Asn Val Ser Gln Phe Ser Val Asn Lys Pro Lys Gly Tyr Lys  
 225 230 235 240  
 Gly Val Ala Phe Pro Leu Pro Thr Asp Ala Gly Val Ala Thr Ala Thr  
 245 250 255  
 Gly Thr Lys Ser Ala Thr Ile Asn Tyr Asn Glu Trp Gln Val Gly Ala  
 260 265 270  
 Ser Leu Ser Tyr Arg Leu Asn Ser Leu Val Pro Tyr Ile Gly Val Gln  
 275 280 285  
 Trp Ser Arg Ala Thr Phe Asp Ala Asp Asn Ile Arg Ile Ala Gln Pro  
 290 295 300  
 Lys Leu Pro Thr Ala Val Leu Asn Leu Thr Ala Trp Asn Pro Ser Leu  
 305 310 315 320  
 Leu Gly Asn Ala Thr Ala Leu Ser Thr Thr Asp Ser Phe Ser Asp Phe  
 325 330 335

Met Gln Ile Val Ser Cys Gln Ile Asn Lys Phe Lys Ser Arg Lys Ala  
 340 345 350

Cys Gly Val Thr Val Gly Ala Thr Leu Val Asp Ala Asp Lys Trp Ser  
 355 360 365

Leu Thr Ala Glu Ala Arg Leu Ile Asn Glu Arg Ala Ala His Val Ser  
 370 375 380

Gly Gln Phe Arg Phe  
 385

<210> 16

<211> 35

<212> DNA

<213> Chlamydia trachomatis

<400> 16

gggatccgc caccatgctg cctgtgggga atcct

35

<210> 17

<211> 28

<212> DNA

<213> Chlamydia trachomatis

<400> 17

ggggctcgag ctattaacgg aactgagc

28